

RELATIONSHIP BETWEEN TRUST AND ACCURACY OF INFORMATION
IN COMMUNICATION

by

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A thesis submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Master of Science

College of Nursing
The University of Utah

June 1983

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ABSTRACT

This study assesses the communication linkage of superior/subordinate and subordinate/superior nurses in relation to the dimensions of trust and accuracy of information communicated.

Separate supervisor nurse and staff nurse Likert type survey questionnaires were created for this study. Each questionnaire contained a total of 24 statements directed toward the perceptual indices of interpersonal trust, climate of trust, and accuracy of information in communication.

A pretest was conducted which resulted in statistical weaknesses. This led to the alteration of some of the statements in both questionnaires to strengthen the reliability of the instruments.

The revised survey questionnaires were employed to collect the data at three not-for-profit community hospitals with an average bed capacity of 365. Demographic data was also collected as background information.

Correlation computations showed a strong positive correlation between interpersonal trust and accuracy of communication for the staff group, while the super-

visor group demonstrated a moderate positive intercorrelation in this index. In the index of climate of trust and accurate communication, both groups exhibited a strong positive correlation. A moderate positive correlation was manifested by both groups in the index measuring climate of trust and interpersonal trust.

Reliability (Cronbach's Alpha) was measured on the revised tools and showed greater than .70 on all three constructs in both staff and supervisor questionnaires.

Factor analysis was carried out to determine the validity of the instruments which resulted in the delimitation of the statements in both questionnaires.

Cronbach's Alpha reliability measure was utilized to examine the status of the tools following factor analysis. Alpha's ranged from .60 to 1.01, with those below .70 being barely acceptable due to being comprised of only two to four indices.

Pearson Correlation Coefficient calculations revealed a slight intercorrelation between interpersonal trust and climate of trust in both groups, whereas interpersonal trust was significantly related to accuracy of communication in both groups. Climate of trust was also significantly related to accuracy of communication in both groups with the staff group at a higher level than the supervisor group.

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ACKNOWLEDGMENTS

I wish to express my deep appreciation to the members of my supervisory committee who were instrumental in guiding me to the culmination of this thesis. Sandra Helm, for her continual encouragement, interest, and significant input; Dr. Verla Collins and Dr. Arthur Rothermich for their valuable direction and support.

Gratitude is also expressed to Rick Lovelady and Bob Johnson for their counseling throughout the computer statistical analysis period.

Special appreciation is extended to my husband, children, mother and in-laws whose constant support sustained me in my efforts.

Recognition is given to the personnel in the Operating Room, the administrative staff and all others with whom I work at McKay-Dee Hospital in Ogden, Utah for their patience and encouragement during the completion of this work.

CHAPTER I

INTRODUCTION

It is an accepted fact that communication is essential for the functioning of organizations. The inability to obtain and disseminate information may threaten an organization's ultimate success. So central is communication that several theorists describe organizations as systems for collecting, assessing and circulating information (Barnard, 1938, Bavelas & Barrett, 1951, Guetzkow, 1965).

Organizations can also be described as social systems that combine technology and humanity; the organizing process of these systems can be perceived in two forms, formal and informal. In formal structure, detailed specifications for various tasks are well defined and documented through organizational goals, policies, procedures and job descriptions. In informal structure, there is much less specification of tasks with more reliance on people working things out informally among themselves. Through communication, relationships are developed and established among individuals within the organization.

Modern hospitals are complex organizations in which nursing administrators use management techniques and skills of communication for effective interaction to accomplish the organization's purposes. Cooperative effort in the achievement of goals and objectives is dependent upon communication. Barnard (1962) reasons,

the possibility of accomplishing a common purpose are the opposite poles of the system of cooperative effort. The process by which these potentialities become dynamic is that of communication (p. 89).

Davis (1977) too, speaks to organizational purpose being mediated through people as he believes "people perceive organizations as a means to help them reach their goals, while at the same time organizations need people to help reach organizational objectives" (p. 14). He further concludes that in order to achieve organizational purposes, managers depend on communication while working through others, and that "all their management actions pass through the bottleneck of communication" (Davis, 1977, p. 374) (see Figure 1).

Communication then, is recognized as basic to any successful human endeavor. Katz (1971) perceives communication to be of primary importance at lower and mid-management levels where direct contact between superior and subordinate is continual. Through communication, superiors and subordinates at all levels of the hierarchy influence each other and react to one another's

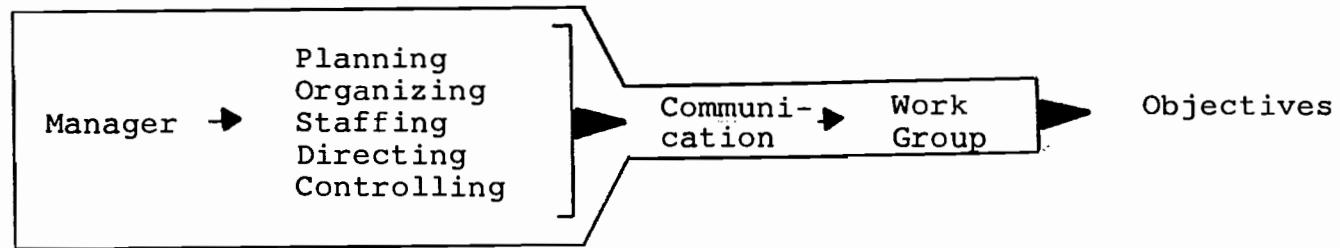


Figure 1. Conceptual model showing all management passes through the bottleneck of communication. Reprinted with permission of McGraw-Hill Book Company. Davis, K. Human behavior at work, organizational behavior(5th ed.). New York: McGraw-Hill, Inc., 1977.

ideas and feelings (Alexander, 1972, p. 249).

The preceding conceptualizations led this author to the assumption that communication is inextricably related to both administration and management, thus possessing significance to the practice of nursing leadership.

The increased awareness of the importance of communication in management has led to the development of expanded ways of perceiving the components in communication. One important construct is the quality of information exchanged in communication. According to Munn and Metzger (1981) "reliable information is at the heart of communication" (p. 6). Explicit, congruent, or accurate communication is clearly related to initiated action taken to carry out organizational functions.

Accuracy of information exchanged in communication will reduce uncertainty and allow understanding to occur. In a milieu where trust exists one would expect an open exchange of information. Conversely, an environment where trust is lacking could be viewed as a barrier to open communication that might result in the transfer of inaccurate information. Mistrust and distortion of information has been examined by Zand (1972) who attests:

One who does not trust others will conceal or distort relevant information, and avoid stating or will disguise facts, ideas,

conclusions and feelings that he believes will increase his exposure to others, so that information he provides will be low in accuracy, comprehensiveness, and timeliness; and therefore have a low congruence with reality (p. 230).

Accuracy of the content of information exchanged in communication then, could either depend upon the feelings and attitudes one person has toward another, or upon the relationship that exists between them.

Purpose

The purpose of this study was to examine the communication linkage of subordinate/superior and superior/subordinate in relation to the dimensions of trust and accuracy of information communicated. Description of this relationship may be of value in extending knowledge to nurse managers, as the acquisition of accurate information is particularly relevant to the practice of nursing management.

Problem Statement

The problem investigated in this project was:
Is the presence of a high level of trust an important variable in the exchange of accurate information in communication between subordinate/superior and superior/subordinate? Is the absence of a high trust level an important variable in the exchange of inaccurate information?

Literature Review

In reviewing the related literature, three areas were investigated: a) organizational climate, b) trust, c) accuracy of communication.

Organizational Climate

Organizational climate is to the organization what personality is to the individual (Halpin, 1966, p. 131). The climate within an organization is influenced by behaviors superiors exhibit in the work environment. In reality, total organizational climate is determined by the combined human behavior of all of its members (Munn & Metzger, 1981, p. 28).

In general, behavioral scientists have found that the type of relationship that a superior develops with subordinates is a central determinant in motivation. The manner in which the superior relates to others helps shape conduct and defines the limits of acceptable behavior. Each superior has an individual leadership style and creates a working environment that is unique (Carlisle, 1971, p. 12).

Barnes (1981) reasons that frequently superiors find they are functioning in, and at times generating, a climate of mistrust in their organizations (p. 108). Mistrust is certainly beneficial when one's well-being and safety are an issue. However, a pervasive assump-

tion of mistrust dictates the organizational climate and ignores conditional determinants, resulting in possible failure to achieve organizational goals (Barnes, 1981, p. 110). In order to dissipate mistrust, superiors must change their assumptions and become more open with subordinates allowing them the opportunity to reciprocate in a mature, responsible way. In this manner, a climate that encourages cooperative and productive behavior could be accomplished (Mitchell, 1971, p. 21).

Gibb (1964) relates that in order to grow, one must create a "defense-reductive" climate which will promote a reduction of one's distrusts and fears. The concern of acceptance inevitably arises from social interaction (p. 279). Gibb further proposes that "the acceptance of concern has to do with the formation of trust and acceptance of self and of others, the reduction of fear of self and of others, and the consequent growth of confidence" (p. 280). In a productive work environment, people begin to lose their fear of one another and form trust in each other and in the situation (Gibb, 1964, p. 284).

Haney (1973) states, "Chief among the demands made upon our organizations is the increasing necessity for an organizational climate compatible with the psychic needs of the organization's members" (p. 13). Through supportive relationships, a high degree of trust can

be developed (Haney, 1973, p. 14).

In organizational climates characterized as supportive and trusting, communication usage is usually sound. Effective communication obviously will do a great deal to enhance and reinforce a climate of trust already in existence. However, trusting relationships are in jeopardy when repeated communication failures occur. Suspicions of ulterior motives rather than inadvertent distortions emerge resulting in organizational discord (Haney, 1973, p. 14-15).

Conversely, in a climate that is threatening and hostile, there is a tendency for communication to suffer. True feelings are suppressed due to fear of reprisal; plus there is a tendency toward communication distortion. This is due to communication practices that are usually dominated by one's need to survive and protect oneself prior to serving the organization's interests (Haney, 1973, p. 15).

Hampton, Summer and Webber (1978) maintain that "perceptual distortions are manifested in 'defensive behavior' which is common when an individual perceives or anticipates threat"(p. 121). In addition, they categorize six defensive and supportive climates related to the facilitation or retardation of communication (Figure 2).

DEFENSIVE CLIMATE

SUPPORTIVE CLIMATE

Evaluation	Speech or other behavior which appears to "judge" the other person increases defensiveness.	Description
Control	Speech which is used to control the listener evokes resistance.	Problem Orientation
Strategy	When the sender is perceived as engaged in a strategem involving ambiguous motivations, receivers become defensive because they don't want to be manipulated.	Spontaneity
Neutrality	When neutrality in speech appears to listeners to indicate a lack of concern for their welfare, they become defensive.	Empathy
Superiority	When people communicate to another that they feel superior in position, power, wealth intellectual ability, physical characteristics, or in other ways, they arouse defensiveness.	Equality
Certainty	Those who are dogmatic, who seem to know the answers, to require no data, tend to put others on guard.	Provisionalism

Figure 2. Communication climates. Reprinted with permission of Scott, Foresman and Company. Hampton, D.R., Summer, C.E., & Webber, R.A. Organizational behavior and the practice of management. (3rd ed.). Dallas, Texas: Scott, Foresman and Company, 1978. 6

Jain (1970) speaks of the "climate of belief." He maintains "the climate or atmosphere in which the communication is to take place starts at the top of the organization." (p. 4). He contends that superiors who do not believe in keeping subordinates informed through responding to their inquiries and eliciting their views, will more than likely have a breakdown in communication. Thus, if superiors believe in withholding information from subordinates, eventually this climate will permeate the total organization (Jain, 1970, p. 4). Related to this, Brueckner (1971) proposes that creativity in subordinates can be hindered or facilitated by the climate that exists in an organization (p. 19).

Driscoll (1978) found subordinates' satisfaction in organizations is achieved more through the degree of trust present than one's inherent trust and suggests that, with trust, the present environment is of greater importance than one's past experience and framework (pp. 44-56).

In summary, it appears when a supportive organizational climate is sensed by subordinates it seems to open up dialogue among the members and reaffirms their commitment to organizational purposes and goals.

Trust

In the area of trust, Gibb found that people tend

to respond in kind to the treatment they receive from others. They tend to accept and trust in return for being accepted and trusted. Gibb terms this phenomena reciprocity and offers a model of trust (Figure 3) (Bradford, Benne & Gibb, 1964, pp. 679, 710). Collins (1977) states, "a commonality to all successful interpersonal beginnings is trust, without which a relationship becomes emotionally impoverished and stagnant" (p. 18). Trust cannot be discussed without reference to honesty. One must have faith in what another person says if a trusting relationship is to develop (Collins, 1977, p. 19). It appears, however, that levels of trust are tested continually and grow or weaken, as trusting relationships are built over time (Dyer, 1976, p. 1980).

In the development of interpersonal communication relationships, the relevant aspects of trust are motivation and behavior. In the motivational context of trust, one is not so concerned with the way someone else behaves, but rather the reasons for the behavior. One is more likely to be deemed trustworthy when ulterior motives are not found in one's behavior. When viewed in the behavioral context, one trusts another when one believes that a great probability exists that the other person will demonstrate trustworthy behavior (Miller & Steinberg, 1975, pp. 250-252.).

STEP 1

Basic Conditions: Acceptance or Trust

Desired Consequences:	Deviant Consequences:
Acceptance and trust of others, understanding, empathy.	Distrust of others, fear, resistance, suspicion.

STEP 2

Basic Conditions: Data Flow

Desired Consequences:	Deviant Consequences:
Open, two-way communications, with wide sharing of important, sensitive information.	Closed, restricted, one-way communications, little sharing of real feelings or sensitive information.

STEP 3

Basic Conditions: Goal Setting and Decision-Making

Desired Consequences:	Deviant Consequences:
Person sets own goals, participates in making decisions.	Goals set by others, decisions made by others.

STEP 4

Basic Conditions: Control

Desired Consequences:	Deviant Consequences:
Self-control, interdependence.	Imposed control, checking up on, following around, threatening.

Figure 3. Trust model. Reprinted with permission of Brigham Young University Press. Bradford, L.P., Benne, K.D., & Gibb, J.R. In W.G. Dyer (Ed.), Insight to impact, strategies for interpersonal and organizational change. Provo, Utah: Brigham Young University Press, 1976.

Watzlawick, Beavin and Jackson (1967) believe the phenomena of trust in human relations is connected in one way or another to all predictions. They further state:

There is in the nature of human communication no way of making another person a participant in information or perception available exclusively to oneself. The other can at best trust or distrust but he can never know (p. 226).

Roberts and O'Reilly (1974) postulate that one of the interpersonal factors consistently related to communication is subordinates' trust in their superior (p. 205).

If trust is lacking between people, information flow is impeded, as they possess less urge to send information and less reason to believe information received. When subordinates do not trust superiors, they tend not to listen to or believe the information received (Davis, 1977, p. 398).

Trust is described by Dyer (1976), as being trustworthy and consistent over time, so that subordinates being directed develop confidence in the actions and words of superiors (p. 44). In addition, superiors can acquire credibility through rigid adherence to the principles of truth in communication and actions that support their words (Dawling & Sayles, 1971, p. 38).

Conversely, in an analysis of the leadership process, Likert (1967) was concerned with the "extent to

which supervisors have confidence and trust in subordinates" (p. 4). He found that superiors that demonstrated confidence and trust in subordinates had consistently high producing departments (pp. 3-12).

Mitchell (1971) feels that when information is withheld from subordinates, they sense that they are not trusted and often feel they should reciprocate. When superiors believe that subordinates cannot be trusted with information, their behavior will project that conviction, and elicit untrustworthy behavior from subordinates (p. 21).

In conclusion, Carlisle (1971) points out that in every successful department trust exists between superior and subordinate. He further submits that behavioral scientists suggest that the development of a trusting relationship with subordinates is a primary means for superiors to increase subordinates' individual commitment to the goals of the organization (p. 12).

Based on the existing literature, it appears that trust between senders and receivers engaged in communication is of significance and results from further study would be of interest.

Accuracy of Communication

In interpersonal communication relationships, ample evidence exists confirming the assumption that informa-

tion is frequently omitted, blocked or distorted.

O'Reilly (1978) defined information distortion "as the incorrect reproduction of objectively correct information and results from either conscious or deliberate alterations or unconscious manipulation" (p. 175). Mehrabian and Reed (1968) hypothesized "the accuracy of a communication is correlated with the objectivity of a communication" and conceptualized that one of the determining factors in communication accuracy was the attitude of the communicator toward the receiver (p. 379).

Drucker notes that historically a problem has existed with extracting reliable and valid information and results from either conscious or deliberate alterations or unconscious manipulation" (p. 175). Mehrabian and Reed (1968) hypothesized "the accuracy of a communication is correlated with the objectivity of a communication," and conceptualized that one of the determining factors in communication accuracy was the attitude of the communicator toward the receiver (p. 379).

Drucker (1974) notes that historically a problem has existed with extracting reliable and valid information from communication based on perceptual relationships between people (pp. 487-488). Stern (1971) too, speaks of two types of messages being transmitted in any communication situation, one being factual and the other

emotional (p. 4).

Hampton, Summer and Webber (1978) offer a summary of the steps occurring in a communication.

The sender develops and encodes a message in a form that can be transmitted; the message is sent in the form of gestures, speech, written words, drawn diagrams, pictures, or other symbols. Hopefully, the message is perceived, decoded and understood by the receiver (p. 117).

A model of the communication process as developed by this study's author, is presented in Figure 4.

A primary factor in communication then is the content of the message with emphasis being put on clarity of meaning, completeness of detail and accuracy of content (Stevens, 1980, pp. 155-156). Kron (1972) points out one must learn to "analyze what we hear and separate fact from fiction" (p. 54). She also notes that distortion is difficult to correct as people quickly accept what they want to believe whether or not it is true and are slow in altering that belief when it is contradicted (Kron, 1972, p. 53). Davis (1977) relates "we communicate our interpretations of reality instead of reality itself" and tend to send and receive "emotional filtered perceptions" (p. 379). Accuracy in communication will be more likely to occur when communicators and listeners are similar in attitudes.

Armand et al. (1968) theorize "accuracy of communication should be a joint function of the information

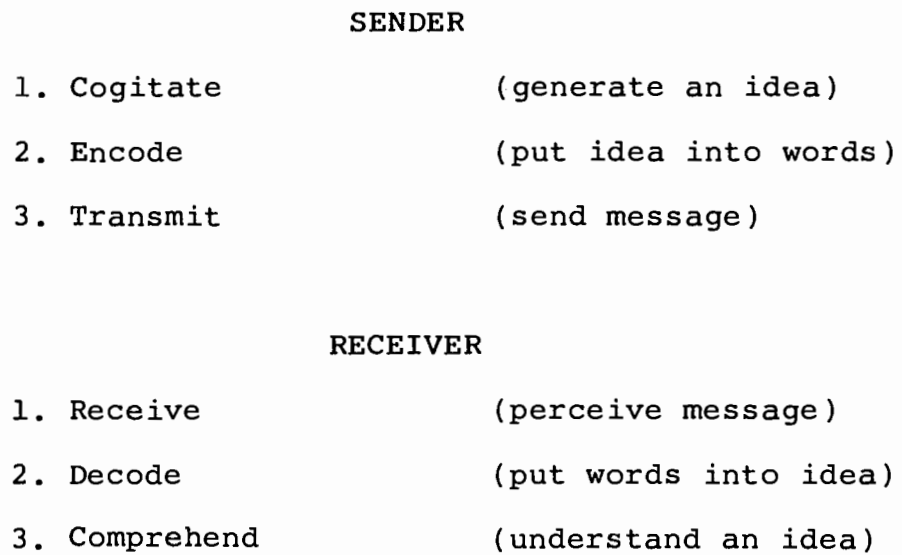


Figure 4. Communication process.

contained in the sender's message and that resulting from the clarifications by the receiver" (p. 303).

Chartier (1981) believes lack of distortion in communication is dependent upon an analysis of the amount of one's negative or positive attitudes toward the sender, the listener and the situation at hand (p. 43).

In summary, communication distortion may occur in subordinate/superior and superior/subordinate relationship patterns, dependent upon the prevailing level of trust each individual has toward the other and toward the situation.

Summary

There seems to be general acceptance of the fact that the process of communication plays an integral part in the functioning of organizations. Through communication, socialization, motivation, influence and change occur, which assists the organization in reaching its goals. There have been commentators in recent years who, in discussing human interaction, believe success or failure is a direct function of our ability to communicate. Adjunct to this, the primacy of trust as a facilitator in eliciting accuracy in the exchange of information in communication could play an important part in promoting optimal personal performance.

Hypothesis

The hypothesis employed in this research was:
The higher the perceived trust of subordinates in superiors, and superiors in subordinates, the greater the predictability for the transfer of accurate information in communication.

Research Variables

The dependent variable in this project was accuracy of communication. The independent variable was level of trust between a) subordinates/superiors, b) superiors/subordinates.

Operational Definitions of Concepts

For the purpose of this study, the following definitions were employed.

Communication Accuracy

Communication accuracy was defined as the transfer of information from sender to receiver that is objective in nature, lacks distortion and is complete. Objective is defined as being free from personal feelings, opinions or prejudice. Lacks distortion is defined as without misleading or misrepresenting statements. Complete is defined as without parts being left out.

Trust

Trust was defined as an expectancy held by an individual that the word, promise or verbal statement of another can be relied upon (Rotter, 1967, p. 651).

Subordinate

A subordinate was considered to be an individual who follows the guidance or direction of another.

Superior

For this investigation, a superior was defined as an individual who guides or directs others.

CHAPTER II

METHODOLOGY

Research Design

Based on the literature review, separate nonexperimental Likert type survey questionnaires were created for this study. Rensis Likert, a social psychologist, developed the Likert Scale, a widely used form of attitude measurement in research. The scale usually consists of ten to thirty declarative statements expressing a particular point of view on a given subject. Through five to seven alternate preferences, respondents indicate to what degree they agree or disagree with the expressed opinion contained in the statement. Polit and Hungler (1978) state that the summation of a Likert Scale allows for fine discrimination between individuals with differing viewpoints (p. 364).

Instruments

Development of the questionnaires involved the generation of several items that clearly stated favorable or unfavorable attitudes toward the perceptual indices of interpersonal trust, climate of trust and accuracy

of information in communication. The purpose of the instruments was to assess superior/subordinate nurse respondents' perceptions of these dimensions. Neutral or extreme statements that more than likely respondents would agree or disagree on were avoided. Nearly equal numbers of positive and negative worded statements were used to avoid bias.

The completed survey questionnaires consisted of eight items directed toward the three constructs for a total of 24 statements. Each statement offered seven alternative preferences for response to each question. Pertinent demographic data were also obtained (Appendix A contains questionnaires).

Pretest

A pretest was conducted involving superior/subordinate nurses at the Cottonwood Hospital, a 280-bed, not-for-profit, community hospital in Salt Lake City, Utah. A cover letter accompanied the surveys eliciting respondents consent to participate, assuring anonymity and describing the rationale of the study (Appendix B). The purposes of the pretest were to:

1. Verify the clarity of the statements.
2. Reveal problems relating to answering, completing and tabulating the data.
3. Investigate the reliability and validity status of the instruments.

Random sampling was not utilized but rather the surveys were distributed to those nurses who expressed a desire to participate and fit the criteria. The sampling population included nurse supervisors who presently had managerial responsibilities for nurse subordinates and, conversely, nurse subordinates who were accountable to nurse supervisors.

One of the limitations recognized in the study is the inherent nature of organizational structure resulting in a smaller nurse superior sampling population.

There were 25 nurse supervisor surveys distributed with 18 returned, for a 72% rate of return. There were 50 nurse subordinate surveys distributed with 33 returned, for a 66% rate of return.

Following the data collection, the surveys were examined for lack of response to any of the statements, any apparent problems with interpretation or written comments by the subjects concerning the instructions, statements or the instruments as they were presented. No problems were found on visual examination and the data was subjected to statistical estimates of correlation for the purpose of estimating the reliability and validity of the tools.

Statistical weaknesses in intercorrelations of the statements in each of the three dimensions were

found. This resulted in the following alterations to the questionnaires:

1. Statements 2, 6, 13, 16, 21, 22, and 23 were modified on both surveys to strengthen their correlation within their specific group.
2. Statements 3, 10, 14, and 15 on the supervisor survey were modified to accomodate for differences in perception between the two subject groups.

It was later found that estimates of correlation were not the best tests to use to establish reliability and validity. Therefore, the data was subjected to statistical analysis to determine Cronbachs' alpha which summarizes the reliability in an index. The results were as follows:

Staff Survey

Interpersonal Trust	.90
Climate of Trust	.90
Accuracy of information in Communication	.76

Supervisor Survey

Interpersonal Trust	.70
Climate of Trust	.64
Accuracy of information in Communication	.59

The goal is for indices with alphas of .70 or higher which demonstrates the average intercorrelation of the indicators and contributes to the confidence in an indice's internal consistency and reliability over

time (Bohrnstedt & Knoke, 1982, p. 361; 13). It was anticipated that the previously stated modifications made in the survey statements would raise those Cronbach alphas that were below .70.

To estimate the construct validity of the two surveys a computer factor analysis was performed. However, quantitative statements were unattainable due to the small sample size. A subjective consideration of face validity is offered in that the statements logically follow the assumptions. A factor analysis on the larger sample in the major study was accomplished.

Major Study

Design

The revised survey questionnaires were employed to collect the data (Appendix C).

Setting

Three not-for-profit community hospitals with an average bed capacity of 365 were utilized to conduct the study. McKay-Dee Hospital Center, Ogden, Utah; Holy Cross Hospital and St. Mark's Hospital, Salt Lake City were employed as data collection sites.

Approval was obtained from the Assistant Administrators/Directors of Nursing at each institution.

Sample

The sample again included all nurses at the three hospitals that expressed a desire to take part in the study and fit the criteria.

Sample Criteria

The criteria for inclusion in the study were:

1. Nurse supervisors with managerial responsibilities for nurse subordinates.
2. Nurse subordinates accountable to nurse superiors.

Procedure

The survey questionnaires were again accompanied by a cover letter describing to respondents the rationale for the study, assuring them of anonymity and eliciting their consent through participation.

Data collection followed the format proposed by the Assistant Administrators or Directors of Nursing of the particular institutions.

At the McKay-Dee Hospital, the investigator met with the nurse management team who subsequently dispensed the supervisor survey to nurse supervisors. They, in turn, distributed the nurse subordinate surveys to their qualified staff members who elected to participate.

All respondents returned their completed surveys to the nursing office either personally or through the

in-hospital mail service in sealed envelopes which were provided. There were 25 supervisor nurse surveys distributed with 17 returned for a 68% rate of return. Fifty subordinate nurse surveys were distributed with 24 returned, for a 48% rate of return.

The investigator addressed the nurse supervisor group at Holy Cross Hospital and asked for their participation. The survey was then distributed to the group along with the nurse subordinate surveys which they, in turn, dispersed to those members of their staff who fit the criteria and chose to participate.

Completed surveys were returned to the investigator through the mail in attached, preaddressed, stamped envelopes. Again, there were 25 nurse supervisor surveys dispensed with 19 returned, for a 76% rate of return. Fifty nurse subordinate surveys were distributed with 26 returned, for a 52% rate of return.

At St. Mark's Hospital, the surveys were distributed by the Assistant Administrator/Director of Nursing at a nurse management group meeting. These same supervisor nurses dispensed the subordinate nurse surveys to their staff nurses who were qualified and wished to take part in the study.

All respondents returned their surveys in the provided sealed envelope to the Director of Nursing's office. Distribution included 25 nurse supervisor surveys,

with 22 returned, for a 88% rate of return and 50 staff nurse surveys were distributed, with 29 returned for a 58% rate of return.

It was interesting to note the higher percentage of actual participation at the hospital in which the Director of Nurses was instrumental in survey distribution. The occurrence suggests the possibility that considerable influence is held by the Nursing Director, with regards to cooperative efforts from their staff.

Of further interest was the overall lower return rate of the nurse subordinate surveys which denotes three possibilities. Either staff nurses needed to be approached on a more personal basis as the supervisors were, or staff nurses generally have less interest in, or commitment to, nursing research. Finally, the subject matter may have held less importance for staff nurses than it did for supervisor nurses.

Data collection was then terminated with a total of 75 nurse supervisor surveys accepted, with 58 returned, for an overall 76% return rate. A total of 150 nurse subordinate surveys were accepted, 79 were returned, producing an overall 53% return rate.

The individual questionnaires were examined and it was determined that all had been answered satisfactorily and were usable for statistical analysis.

CHAPTER III

STATISTICAL ANALYSIS AND FINDINGS

Overview

This chapter will address the demographic data as background information. Construct correlation studies using scattergrams will follow. The reliability measure (Cronbach's Alpha) will be reported and the validity for the three constructs, interpersonal trust, climate of trust, and accuracy of communication used in two tools (one supervisor - one staff) that led this researcher to factor analysis will be addressed. Pearson correlations on the valid statements will be presented and discussed.

Demographic Data

Demographic data of both the supervisor and staff nurse populations related to sex, age, educational preparation, marital status, and years of experience were gathered. This information is to be used as background information. Priorities and time precluded further correlational studies at this point.

Of the 58 supervisor nurses sampled, 56 (96.6%) were female and two (3.4%) were male. With 57 reporting there was a mean age of 38.7 years ($\underline{SD} = 9.79$), ranging from under 25 to over 55. Forty-two (72.4%) were married, ten (17.2%) single and six (10.4%) were divorced.

Seven (12%) reported holding master's degrees, while 35 (60.4%) held baccalaureate degrees, ten (17.3%) held nursing diplomas and six (10.3%) held associate degrees.

Total number of years in practice ranged from one to 35 years with a mean of 14.5 ($\underline{SD} = 5.31$), while time spent in current supervisor nurse positions ranged from less than one year to 24 years with a mean of 4.0 ($\underline{SD} = 7.77$). Numbers of staff supervised with 57 reporting, had a mean of 27.5 ($\underline{SD} = 4.38$) ranging from three to over 40 which included one to nine male nurses for a mean of 2.6 ($\underline{SD} = 11.20$).

Of the 77 staff nurses participating in the sample, 76 (98.7%) were female and one (1.3%) was male, ranging in age from under 25 to over 55 with a mean age of 35.6 ($\underline{SD} = 13.52$). In the marital status category, 16 failed to report which may have been due to the category placement on the page resulting in its being overlooked. Thirty-nine (63.9%) reported being married, while 13 (21.3%) were single, seven (11.5%) were divorced, and two (3.3%) were widowed.

Reported levels of education included 34 (44.1%) with baccalaureate degrees, 27 (35.1%) holding associate degrees and 16 (20.8%) with nursing diplomas.

Years of experience in nursing with 67 reporting ranged from less than one year to 40 years, with a mean of 10.8 (\underline{SD} = 6.20). Again, the failure of ten to report was probably due to category placement on the page causing it to be overlooked. Time spent in current position with 76 reporting ranged from less than one year to 24 years with a mean of 4.4 (\underline{SD} = 8.26).

Descriptive Statistics

Using a Likert-type scale, staff nurses and their supervisors were surveyed, measuring the constructs of interpersonal trust, climate of trust and accuracy of communication. Eight items were developed for each construct. Respondents chose one of seven alternative responses.

Raw scores in each construct were derived by computer (BMPD) from the responses to form scale scores, after reversing the directionality of the negatively-loaded statements to eliminate negative scores. One collection of scores was produced for the supervisor group and a second collection for the subordinate group. These scores were then translated into graphic scattergrams to determine both the direction and approximate

magnitude of a correlation. In a scattergram, the degree of a relationship is indicated by the degree to which the dots on the plot approximate a straight line. The slope of the line ascends from the lower left corner to the upper right corner, with the high values on one variable tending to be associated with high values on the other variable, indicating a high positive relationship. Conversely, a negative relationship is one in which the slope of the line transcends from the upper left corner to the lower right corner with high values on one variable being associated with low values on the other variable. Despite the direction, the more closely placed the dots are in relation to the diagonal slope, the higher the correlation.

Direction and magnitude of a relationship can also be expressed in a succinct numerical index known as a correlation coefficient. The values of this index R range from -1.0 to 0 for a negative to no relationship, through 0 to + 1.0 for a positive correlation.

In this study, for the supervisor group sampled, the scattergrams and numerical indices reflect a moderate positive relationship between interpersonal trust and accuracy of communication, $R = .706$ (Figure 5), with a slightly higher relationship between climate of trust and accuracy of communication, $R = .737$ (Figure 6). While a moderately positive relationship is shown

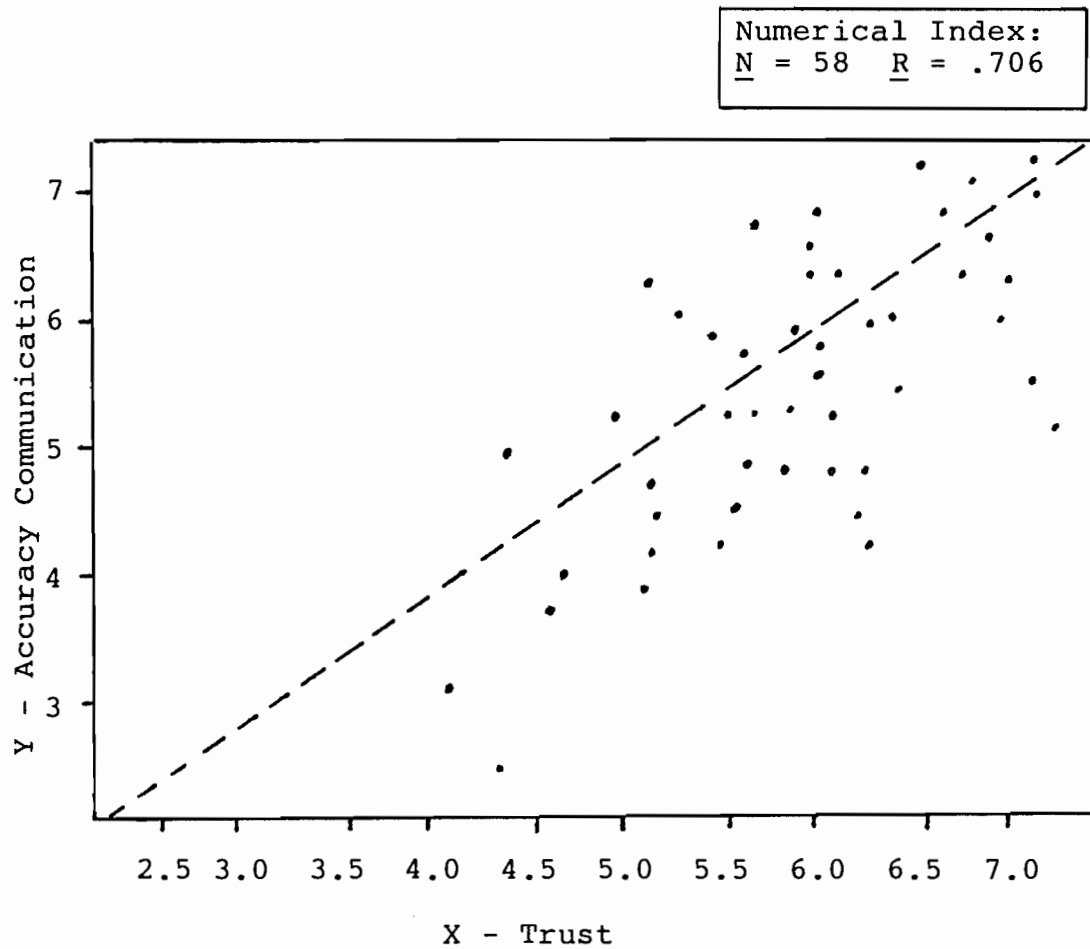


Figure 5. Scattergram I: Supervisor group.

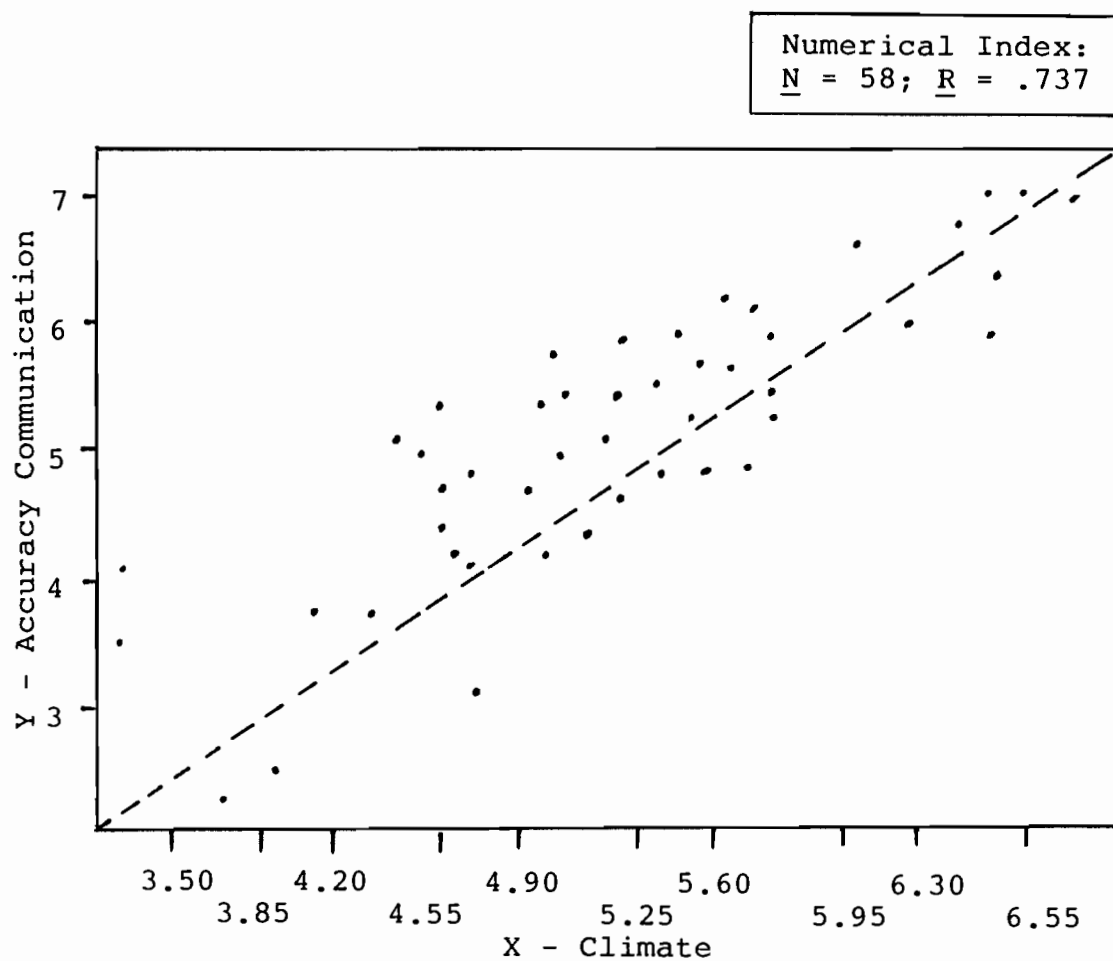


Figure 6. Scattergram II: Supervisor group.

between climate of trust and interpersonal trust, $\underline{R} = .707$ (Figure 7).

For the staff group sampled, the scattergrams and numerical indices expressed a stronger relationship between interpersonal trust and accuracy of communication, $\underline{R} = .776$ (Figure 8) and climate of trust and accuracy of communication, $\underline{R} = .745$ (Figure 9) than was demonstrated by the supervisor group. While a moderately positive relationship between climate of trust and interpersonal trust, $\underline{R} = .705$ (Figure 10) was found which was similar to the results found in the supervisor group.

Results of these computations seem to support the assumption that the higher the perceived trust of subordinates in superiors and to a lesser degree superiors in subordinates, the greater the predictability for the transfer of accurate information in communication.

It would be interesting to know if the differences between the two groups would have been overcome with a supervisor sample population equal to that of the staff sample population.

Reliability

The reliability of the questionnaires used in the major study was quantitatively investigated utilizing statistical analysis to determine Cronbach's alpha coefficients. An acceptable level of greater than .70 is

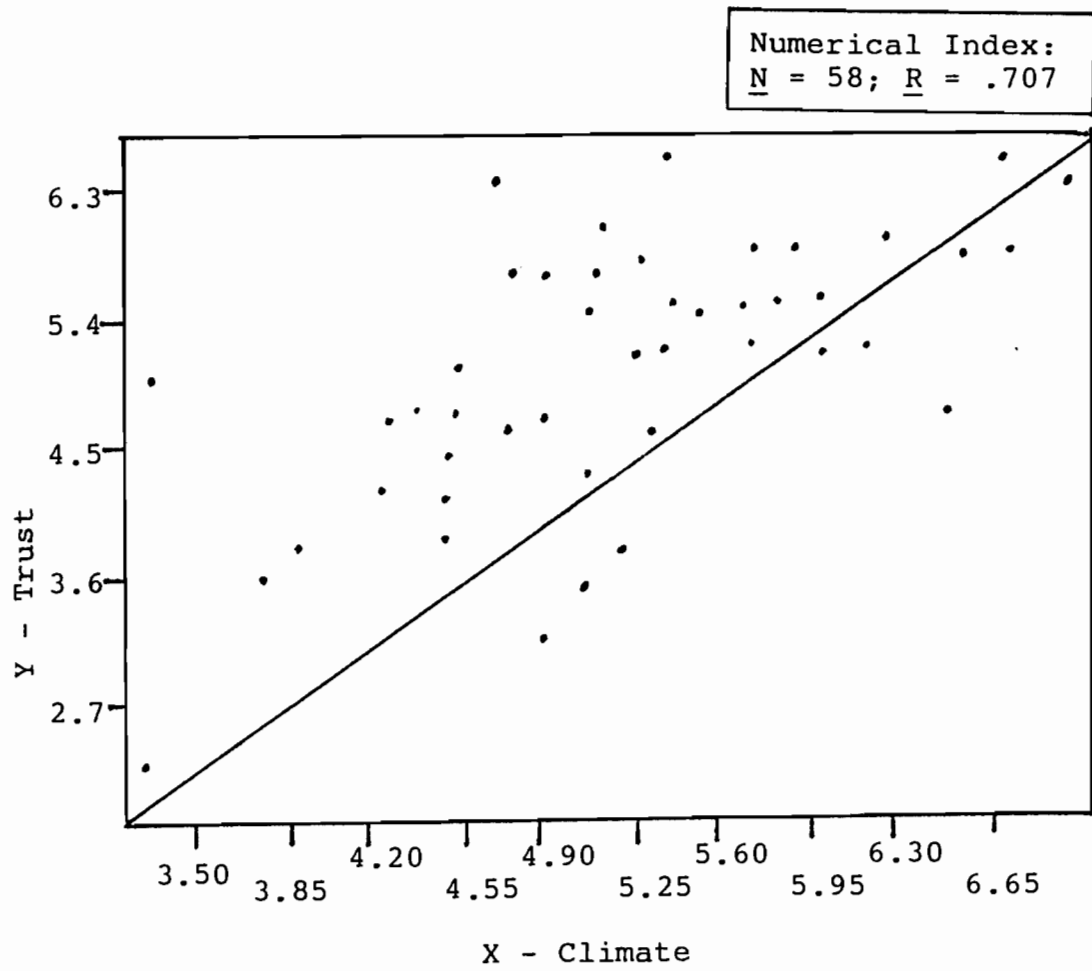


Figure 7. Scattergram III: Supervisor group.

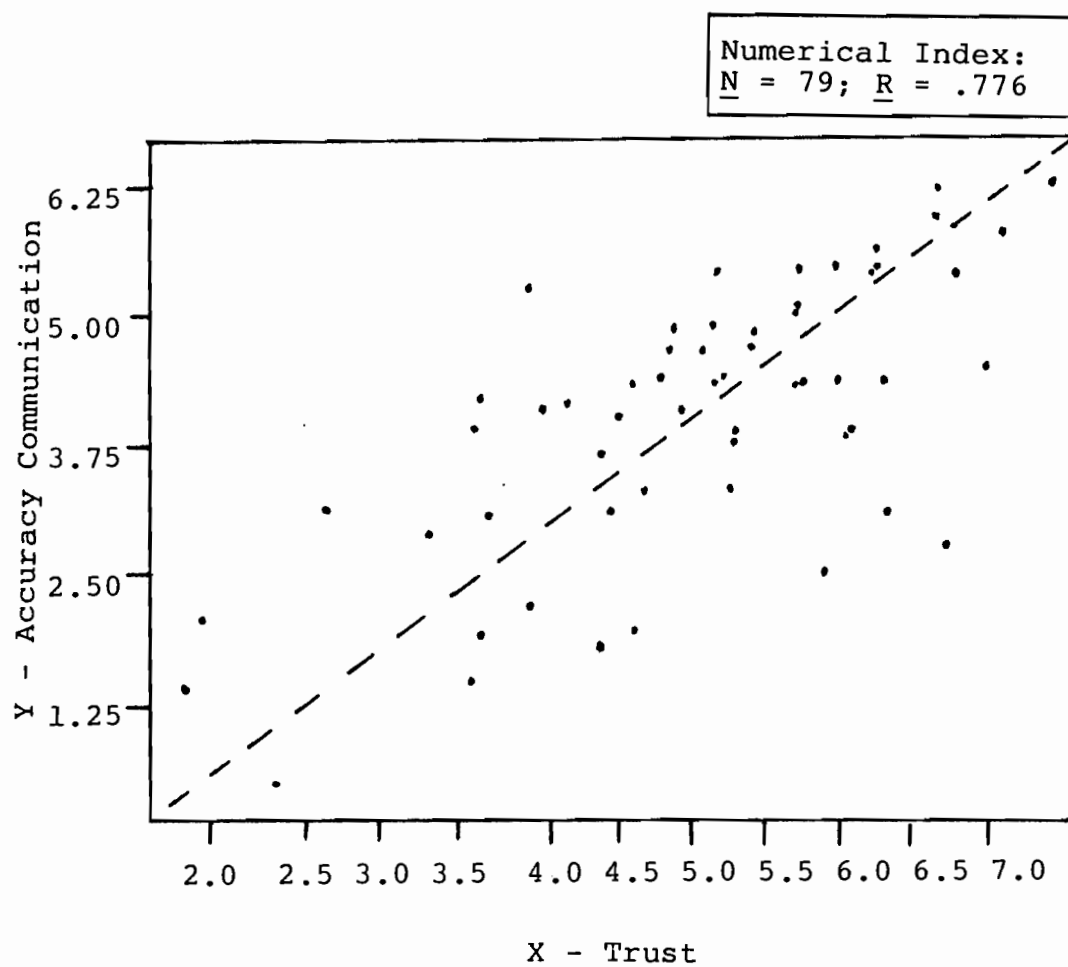


Figure 8. Scattergram IV: Staff group.

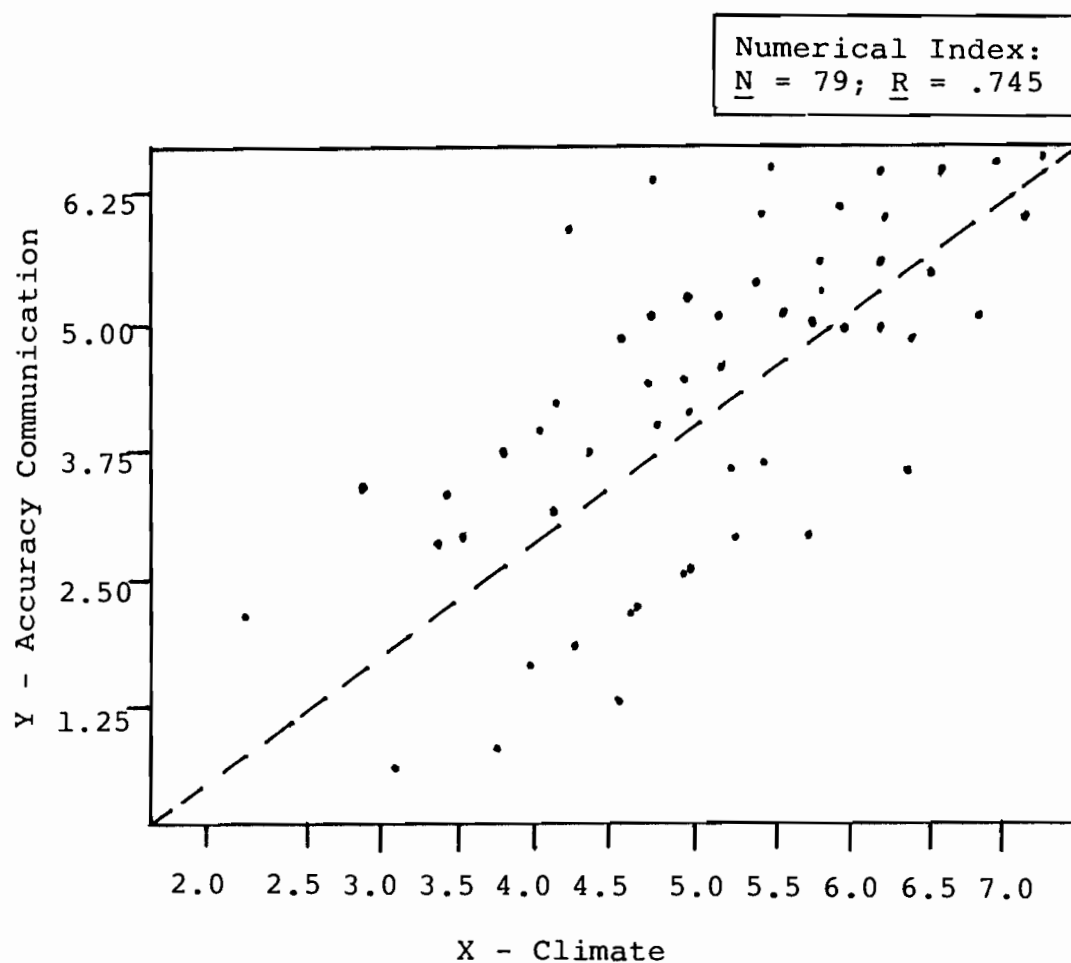


Figure 9. Scattergram V: Staff group.

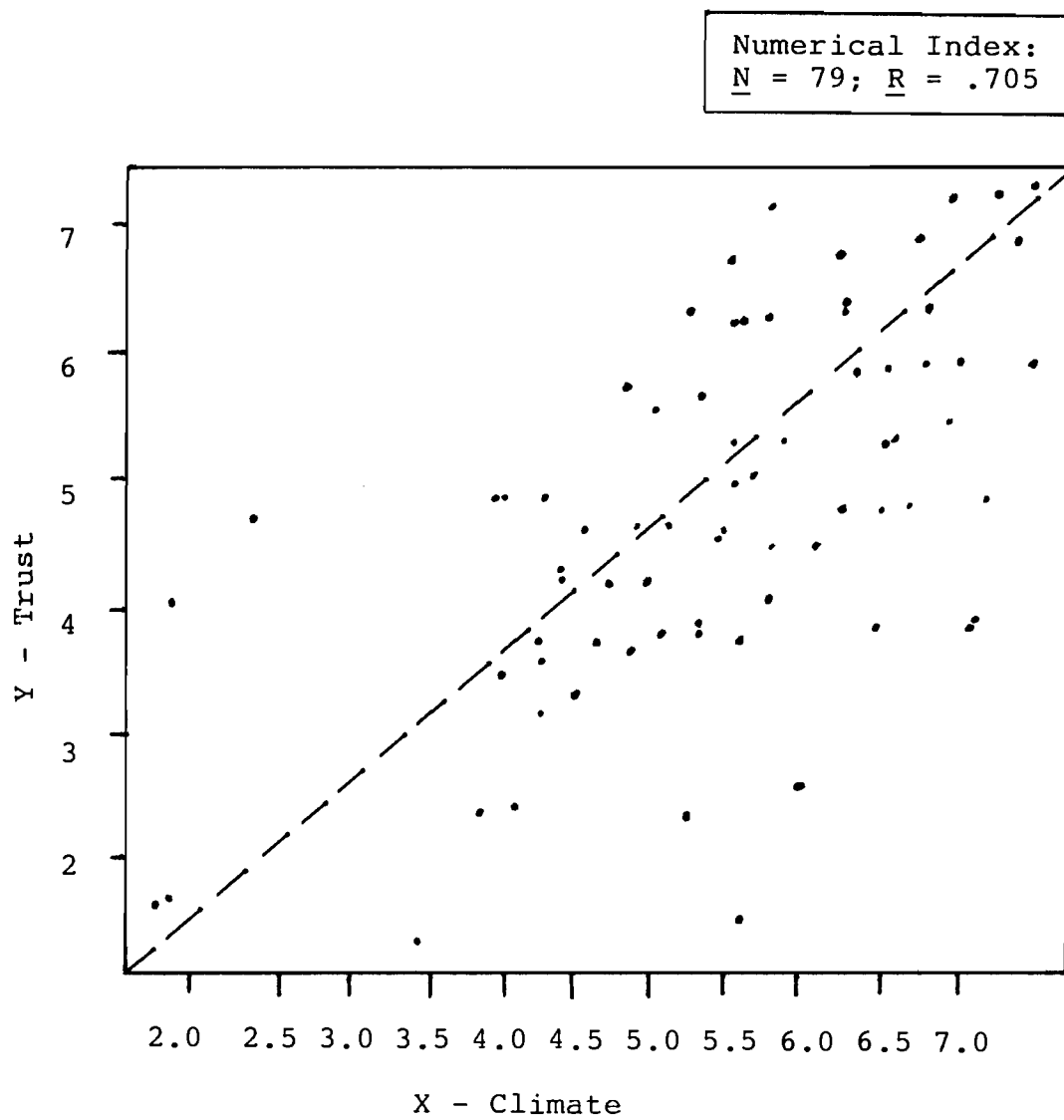


Figure 10. Scattergram VI: Staff group.

sought. The results of this study were as follows:

Supervisor Questionnaire

Interpersonal Trust	.85
Climate of Trust	.74
Accuracy of Information in Communication	.87

Staff Questionnaire

Interpersonal Trust	.88
Climate of Trust	.83
Accuracy of Information in Communication	.91

Following these computations, it was discovered by the investigator that in order to demonstrate discriminate validity of the items in each questionnaire, a factor analysis was required.

Factor Analysis

Polit and Hungler (1978) point out that "factor analysis does not test hypotheses, nor does it deal with variables that the researcher classifies as 'dependent and independent variables.' " (p. 584). Rather, factor analysis identifies which variables constitute a unified concept.

Factor analytic techniques enable the researcher to see whether some underlying pattern of relationships exists so that data may be rearranged to a smaller set of factors or components that may account for the

source of the observed interrelations in the data. Factor analysis was carried out through the computer program, Statistical Package for the Social Sciences.

Usually three steps are utilized in factor analysis:

1. Preparation of a correlation matrix from which factors are derived from the intercorrelations among the variables is the first step.

2. Extraction of the initial factors is known as factoring. Five methods are available, but the most widely accepted factoring method is PA2 (principle factoring with iteration). This method gives the researcher inferred factors and employs an iteration procedure for improving the estimate of communality. Through the iteration process, computer computation continues until the differences between two successive communality estimates are negligible. If, for a particular iteration, any of the communalities exceed 1.0, the iteration process will stop and the factors for the previous acceptable iteration will be retained.

The result of initial factoring is the extraction of an unrotated factor matrix which contains coefficients or weights for each variable in the original data matrix on each extracted factor.

3. Rotation to terminal factors. Rotation is desirable because it simplifies the factor structure

by rotating the initial factors in such a way that a variable loads high on one factor and lower on all others. Four methods of rotation are offered but the most widely used is the varimax rotation which maintains the independence of factors and produces uncorrelated factors. The rotated factor matrix is what the researcher works with in interpreting the factor analysis.

In this study, a correlation matrix was generated from the data for each of the three sets of statements in each survey and was used as the basic input to the factor analysis. Calculations then commenced using principle factoring with iteration and varimax rotation.

In the superior survey, the results identified two factors at an acceptable level of greater than .25 or above in each of the eight statement sets (Refer to Tables 1, 2 and 3).

In the staff survey, two factors were identified, in the first and second statement sets and one factor in the third set (see Tables 4, 5 and 6).

Selection was then made of the heavier weighted factor, limiting each set to one factor. Delimitation in the supervisor survey resulted in the selection of statements 2, 3 and 4 as probable valid measurements of interpersonal trust, 9 and 12 as probable valid measurements of climate of trust, and 17, 18, 19 and 24 as probable valid measurements of accuracy of

Table 1
 Supervisor Survey Set 1: Factor Matrix
 Using Principal Factor with
 26 Iterations

Variable	Factor 1		Factor 2	
Q1	0.70906		-0.70023	
Q2	0.23236		0.10081	
Q3	0.63736		0.38658	
Q4	0.75225		0.20141	
Q5	0.77568		-0.05232	
Q6	0.74403		-0.09917	
Q7	0.70697		0.12124	
Q8	0.78198		0.13278	

	Communality	Factor	Eigenvalue	% of Var	Cum %
Q1	0.99309	1	3.79542	83.8	83.8
Q2	0.06416	2	0.73540	16.2	100.0
Q3	0.55567				
Q4	0.60644				
Q5	0.60441				
Q6	0.51451				
Q8	0.62912				

Varimax Rotated Factor Matrix				
	Factor 1		Factor 2	
Q1*	0.14231		0.98632	
Q2*	0.24609		0.05997	
Q3*	0.74147		0.07676	
Q4*	0.72122		0.29374	
Q5	0.58667		0.51013	
Q6	0.53315		0.52836	
Q7	0.63672		0.33030	
Q8	0.70347		0.36640	

Note. *Refers to acceptable level before delimitation.

Table 2
 Supervisor Survey Set 2: Factor Matrix
 Using Principal Factor with
 62 Iterations

Variable	Factor 1	Factor 2
Q9	0.64952	-0.31957
Q10	0.42453	0.17876
Q11	0.63791	-0.03223
Q12	0.75597	-0.30873
Q13	0.50723	0.21737
Q14	0.52661	0.01336
Q15	0.41358	-0.19865
Q16	0.37893	0.92495

	Communality	Factor	Eigenvalue	% of Var.	Cum %
Q9	0.52400	1	2.42977	67.4	67.4
Q10	0.21218	2	1.17284	32.6	100.0
Q11	0.40797				
Q12	0.66680				
Q13	0.30453				
Q14	0.27750				
Q15	0.21051				
Q16	0.99911				

Varimax Rotated Factor Matrix		
	Factor 1	Factor 2
Q9*	0.72155	0.05802
Q10	0.27316	0.37090
Q11	0.56447	0.29891
Q12*	0.80744	0.12182
Q13	0.32443	0.44640
Q14	0.44552	0.28108
Q15	0.45697	0.04110
Q16*	-0.14803	0.98853

Note. *Refers to acceptable level before delimitation.

Table 3
 Supervisor Survey Set 3: Factor Matrix
 Using Principal Factor with
 13 Iterations

Variable	Factor 1	Factor 2
Q17	0.64100	-0.13565
Q18	0.64859	-0.26787
Q19	0.82206	-0.29017
Q20	0.81548	-0.02872
Q21	0.46285	0.12659
Q22	0.77098	0.40834
Q23	0.63397	0.43979
Q24	0.58483	-0.22158

	Communality	Factor	Eigenvalue	% of Var	Cum %
Q17	0.42928	1	3.72493	86.1	86.1
Q18	0.49242	2	0.60046	13.9	100.0
Q19	0.75998				
Q20	0.66584				
Q21	0.23026				
Q22	0.76115				
Q23	0.59533				
Q24	0.39113				

Varimax Rotated Factor Matrix		
	Factor 1	Factor 2
Q17*	0.57815	0.30826
Q18*	0.66897	0.21188
Q19*	0.81617	0.30634
Q20	0.64303	0.50235
Q21	0.27310	0.39456
Q22	0.32792	0.80847
Q23	0.20276	0.74446
Q24*	0.59038	0.20633

Note. *Refers to acceptable level before delimitation.

Table 4
Staff Survey Set 1: Factor Matrix
Using Principle Factor with
51 Iterations

Variable	Factor 1		Factor 2	
Q1	0.67021		0.19039	
Q2	0.51620		-0.28636	
Q3	0.75417		-0.32845	
Q4	0.80579		-0.13196	
Q5	0.58132		0.10232	
Q6	0.66196		0.62222	
Q7	0.80330		-0.00374	
Q8	0.63915		-0.14724	

	Communality	Factor	Eigenvalue	% of Var	Cum %
Q1	0.48544	1	3.76362	85.0	85.0
Q2	0.34847	2	0.66287	15.0	100.0
Q3	0.67665				
Q4	0.66670				
Q5	0.34840				
Q6	0.82535				
Q7	0.64530				
Q8	0.43019				

Varimax Rotated Factor Matrix		
	Factor 1	Factor 2
Q1	0.39831	0.57165
Q2*	0.58088	0.10509
Q3	0.79174	0.22314
Q4	0.70732	0.40793
Q5	0.38524	0.44720
Q6*	0.11856	0.90072
Q7	0.62423	0.50561
Q8	0.58799	0.29061

Note. *Refers to acceptable level before delimitation.

Table 5
Staff Survey Set 2: Factor Matrix
Using Principal Factor with
15 Iterations

Variable	Factor 1		Factor 2	
Q9	0.68854		-0.00638	
Q10	0.21042		0.33460	
Q11	0.81143		-0.06649	
Q12	0.39171		0.41171	
Q13	0.47799		0.17254	
Q14	0.65395		0.23901	
Q15	0.92783		-0.32769	
Q16	0.70518		-0.15362	

	Communality	Factor	Eigenvalue	% of Var	Cum %
Q9	0.47413	1	3.34447	86.9	86.9
Q10	0.15624	2	0.50369	13.1	100.0
Q11	0.66283				
Q12	0.32294				
Q13	0.25824				
Q14	0.48478				
Q15	0.96824				
Q16	0.52076				

Varimax Rotated Factor Matrix				
	Factor 1		Factor 2	
Q9*	0.62294		0.29338	
Q10*	0.04417		0.39279	
Q11*	0.75974		0.29263	
Q12*	0.17396		0.54100	
Q13	0.35557		0.36306	
Q14	0.48518		0.49938	
Q15*	0.97806		0.10792	
Q16*	0.70173		0.16931	

Note. *Refers to acceptable level before delimitation.

Table 6
Staff Survey Set 3: Factor Matrix Using
Principal Factor with 4 Iterations

Variable	Factor 1				
Q17	0.67531				
Q18	0.62468				
Q19	0.86707				
Q20	0.81644				
Q21	0.86483				
Q22	0.81604				
Q23	0.65162				
Q24	0.65474				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q17	0.45604	1	4.53180	100.0	100.0
Q18	0.39022				
Q19	0.75181				
Q20	0.66657				
Q21	0.74793				
Q22	0.66593				
Q23	0.42461				
Q24	0.42868				

Note. All statements limited to one factor.

communication as shown in Table 7. In the staff survey delimitation, statements 2 and 3 were defined as probable valid measurements of interpersonal trust, while 9, 11, 15 and 16 were defined as probable valid measurements of climate of trust and all eight statements were prescribed as probable valid measurements of accuracy of communication as shown in Table 8.

In summary, the end result of the factor analysis presented nine statements out of the original 24 in the supervisor questionnaire that were felt to be valid measures of the constructs and could be used for statistical analysis. Out of the nine statements three were directed toward interpersonal trust, two toward climate of trust, and four toward accuracy of communication.

In the staff questionnaire, a total of 14 statements out of the original 24 appeared to be valid measurements of the constructs with two directed toward interpersonal trust, four toward climate of trust and the original eight toward accuracy of communication. These 14 statements then could be used for statistical analysis (Appendix D).

Reliability

Following the factor analysis, reliability was measured on the remaining valid statements using Cronbach's Alpha. Results were as follows:

Table 7
 Supervisor Survey: Factor Matrix Using
 Principal Factor with Variable
 Iterations

Variable	89 Iterations				
	Factor 1				
Q2	0.21815				
Q3	0.99046				
Q4	0.59996				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q2	0.04759	1	1.38855	100.0	100.0
Q3	0.98101				
Q4	0.35995				
	8 Iterations				
	Factor 1				
Q9	0.80188				
Q12	0.80188				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q9	0.64301	1	1.28601	100.0	100.0
Q12	0.64301				

Table 7 continued

Variable		10 Iterations			
		Factor 1			
Q17		0.68699			
Q18		0.70930			
Q19		0.85429			
Q24		0.60781			
		Communality	Factor	Eigenvalue	% of Var Cum %
Q17	0.47196	1	2.07430	100.0	100.0
Q18	0.50311				
Q19	0.72981				
Q24	0.36943				

Table 8

Staff Survey: Factor Matrix Using Principal Factor
With Variable Iterations

Variable	8 Iterations				
	Factor 1				
Q2	0.68316				
Q3	0.68316				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q2	0.46671	1	0.93343	100.0	100.0
Q3	0.46671				
	9 Iterations				
	Factor 1				
Q9	0.66953				
Q11	0.82400				
Q15	0.93390				
Q16	0.75310				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q9	0.44827	1	2.56658	100.0	100.0
Q11	0.67898				
Q15	0.87217				
Q16	0.56716				

Table 8 continued

Variable	4 Iterations				
	Factor 1				
Q17	0.67531				
Q18	0.62468				
Q19	0.86707				
Q20	0.81644				
Q21	0.86483				
Q22	0.81604				
Q23	0.65162				
Q24	0.65474				
	Communality	Factor	Eigenvalue	% of Var	Cum %
Q17	0.45604	1	4.53180	100.0	100.0
Q18	0.39022				
Q19	0.75181				
Q20	0.66657				
Q21	0.74793				
Q22	0.66593				
Q23	0.42461				
Q24	0.42868				

Supervisor Survey

(Q2-3-4)	Interpersonal Trust	.60
(Q9-12)	Climate of Trust	.66
(Q17-18; 19-24)	Accuracy of Communication	.60

Staff Survey

(Q2-3)	Interpersonal Trust	.60
(Q9-11 15-16)	Climate of Trust	.69
Q17-18- 19-20- 21-22- 23-24)	Accuracy of Communication	1.01

Those constructs with an alpha of less than .70 are barely acceptable due to the fact that they are comprised of only two to four statements.

Pearson Correlations

The relationship between two measures is most commonly described through correlational procedures. Following the factor analysis, the data from the valid statements of the two survey questionnaires was subjected to Pearson Correlation Coefficient computations. Figure 11 presents the results followed by interpretation for the supervisor survey. Figure 12 indicates the findings of the staff survey with interpretation.

VARIABLE PAIR 1

Interpersonal Trust with Climate of Trust

$$\begin{aligned} n &= 58 \\ \underline{r} &= 0.2963 \\ \underline{p} &= .012 \end{aligned}$$

VARIABLE PAIR 2

Interpersonal Trust with Climate of Trust

$$\begin{aligned} n &= 58 \\ \underline{r} &= 0.5667 \\ \underline{p} &= .000 \end{aligned}$$

VARIABLE PAIR 3

Climate of Trust with Accuracy of Communication

$$\begin{aligned} n &= 58 \\ \underline{r} &= 0.5416 \\ \underline{p} &= .000 \end{aligned}$$

INTERPRETATION:

Variable pair one shows a light intercorrelation between interpersonal trust and climate of trust ($\underline{r} = .30$; $\underline{p} = .01$). In variable pair two, interpersonal trust is significantly related to accuracy of communication and accounts for approximately 32% of the variance [$(r^2) = (.57)^2 = .32$]. In variable pair 3, climate of trust is also significantly related to accuracy of communication and accounts for comparatively 29% of the variance [$(r^2) = (.54)^2 = .29$].

Figure 11. Pearson supervisor survey.

VARIABLE PAIR 1

Interpersonal Trust with Climate of Trust

$$\begin{aligned} \underline{n} &= 79 \\ \underline{r} &= 0.3128 \\ \underline{p} &= .003 \end{aligned}$$

VARIABLE PAIR 2

Interpersonal Trust with Accuracy of Communication

$$\begin{aligned} \underline{n} &= 79 \\ \underline{r} &= 0.5053 \\ \underline{p} &= .000 \end{aligned}$$

VARIABLE PAIR 3

Climate of Trust with Accuracy of Communication

$$\begin{aligned} \underline{n} &= 79 \\ \underline{r} &= 0.6887 \\ \underline{p} &= .000 \end{aligned}$$

INTERPRETATION:

Again, in interpretation, variable pair one demonstrates a slight intercorrelation between interpersonal trust and climate of trust ($\underline{r} = .31$; $\underline{p} = .003$) whereas, variable pair two, interpersonal trust is significantly related to accuracy of communication and accounts for about 26% of the variance [$(r^2) = (.51)^2 = .26$]. In variable pair three, climate of trust is even more significantly related to accuracy of communication and accounts for approximately 48% of the variance [$(r^2) = (.69)^2 = .48$].

Figure 12. Pearson staff survey.

It is interesting to note that although the scales are slightly different both on the questionnaires and on the factor analysis, different elements are important in interpersonal trust and climate of trust between the two groups. Staff nurses appear to rely slightly more on climate of trust whereas the supervisor nurses seem to rely more on interpersonal trust.

CHAPTER IV

CONCLUSIONS AND LIMITATIONS

The results of this study seem to lend credibility to the assumption that the higher the perceived trust of subordinates in supervisors and supervisors in subordinates, the greater the predictability for the transfer of accurate information in communication. Thus, the accuracy of communication can be influenced by the attitudes of the communicators toward each other. Trust appears to be central to the growth of human communication.

The concept of trust pervades all relationships. It is important to understand that trust is an element of human behavior. In discussing the phenomena of trust or lack of trust, it seems that superior/subordinate nurses must be cognizant that communication flows along channels of friendship. In this milieu when a high level of trust is present, content is more freely communicated and the recipient is more accurate in his/her perception of the sender's message.

Findings

Correlation and reliability computations were performed on responses of both the supervisor and staff groups. Results of these computations showed a strong positive correlation between interpersonal trust and accuracy of communication for the staff group, while the supervisor group demonstrated a moderate positive intercorrelation in this index. In the index of climate of trust and accurate communication, both groups exhibited a strong positive correlation. A moderate positive correlation was manifested by both groups in the index measuring climate of trust and interpersonal trust.

Reliability (Cronbach's Alpha) was greater than .70 on all three constructs in both staff and supervisor questionnaires.

In order to establish more than face validity of the measurement tools, a factor analysis was required. This was accomplished through the use of the computer program, The Statistical Package for the Social Sciences. The results defined statements 2, 3, and 4 in the construct of interpersonal trust, 9 and 12 in the construct of climate of trust and 17, 18, 19 and 24 in the construct of accurate communication as probable valid measurements of these indices in the supervisor questionnaire. Statements 2 and 3 in the index of interpersonal

trust, 9, 11, 15 and 16 in the index of climate of trust, and 17 through 24 in the index of accurate communication were determined to be probable valid measurements of these constructs in the staff questionnaire (Appendix D).

Cronbach's Alpha reliability measure was utilized to examine the status of the tools following factor analysis. The alpha's ranged from .60 to 1.01, with those below .70 being barely acceptable due to being comprised of only two to four indices.

Implications of the Tool

This section of the study will deal with implications and limitations of the statistically valid instrument as well as the survey results using this tool.

The newly developed instrument tests out as statistically valid and in fact does measure the constructs of interpersonal trust, climate of trust and accuracy of communication. This is significant as it allows this researcher to quantitatively make a statement regarding the qualitative dimensions of trust and accuracy of communication, two very abstract qualities. Perhaps for some this information will give more relevance to the hypothesis that trust and accuracy of communication are related.

The limitation related to the instrument is the

number of statements in each construct. A minimum of ten valid statements are recommended for a strong instrument. This, in turn would raise the level of reliability for each construct in the tool.

Data obtained from the staff nurses and their supervisors using the valid tool was subjected to Pearson Correlation Coefficient calculations. The results of these computations demonstrated a slight intercorrelation between interpersonal trust and climate of trust in both groups. Whereas interpersonal trust was significantly related to accuracy of communication in both groups, climate of trust was also significantly related to accuracy of communication in both groups with the staff group at a higher level than the supervisor group.

Implications for Nursing

This section will address personal selective meaningful implications drawn from the results of this study.

There is a need for nurse managers to be aware that they are essential links in the communication chain and their success or failure as managers depends on good communication. Expanding this point of view, both supervisor nurses and staff nurses are critical components in the communication process as nurse managers strive to build interpersonal relationships with staff

nurses through communication.

Based on the premise of this study, interpersonal relationship skills then should be directed toward developing trust and a climate of trust in a working environment.

Nurse managers have a fundamental responsibility to create a working climate where there is trust and mutual respect. A climate with a human relations approach that offers support to subordinates and reduces the need for staff nurses to feel they have to protect themselves is indicated.

Human relations are in a constant state of flux, and the supervisor nurse as the leading communicator in the group needs to know how staff nurses are responding to one another and channel constructive relationships. Nurse managers need to create a climate that fosters good interpersonal relationships between subordinates and between supervisors and subordinates. Mistrust, competition and conflict among subordinate nurses and between supervisor nurses and subordinates as a constant friction becomes unsupportable. Conversely, reduction of personal defensiveness within the group should produce a climate of trust conducive to fostering conditions that elicit the exchange of accurate communication and enhance the ability of most superior/subordinate nurses to make a conscious decision

to relate accurate information. Nurses can hardly expect to solve the day-to-day problems of patient care without first building trust and a team concept within their work group.

Some supervisor nurses have little incentive to provide a climate of trust but rather favor a carefully calibrated mixture of carrots and sticks in dealing with subordinates. In contrast, other nurse managers tend to follow a team approach in their behavior. Real bonds of trust are forged when open and frank sharing occurs between superior/subordinate nurses. When a climate of trust exists supervisor/subordinate nurses will have a profound influence on one another and as nurses listen to one another a shared vision of what can be emerges.

Siber (1981) reasons that "trust is the basis for an effective relationship and for effectively communicating any message" (p. 67). He also contends the "openness feeds upon itself and cumulatively nurtures trust" (p. 67).

Nurse managers need to emphasize the caring dimension of their roles and present themselves as individuals who care about the people they lead. Leading should be accomplished in a trusting spirit, not in a coercive way. The role nurse managers take is one of sensitizing nurse subordinates to the priorities of caring

for patients which is the primary mission of nursing.

Many nurses are dedicated to the improvement of their profession and their professional lives. This dedication stresses the need for nursing managers to examine their leadership philosophy and resulting methodology which is essential in determining the substance of nursing administration's practice. A tradition of strong leadership is the goal and impliant in this leadership role is the awareness of the need for trust and accuracy of communication.

Limitations of the Study

This study was conducted using a small sample which precludes the ability to generalize to a large population.

Demographic data was not statistically correlated to the data gathered on the constructs which could have added further insight into the outcome of the study.

Respondents may have held perceptions quite different from those they were willing to admit due to social desirability and acquiescence which is known to present vulnerability to survey studies.

Future Research

In order for this study to be strengthened, this author suggests the following considerations in future, similar studies.

1. Expansion and further refinement of the measuring tool is warranted to enhance the dimensions of the concepts.

2. Replication of the study using a much larger sample size that is perhaps widely disseminated geographically, in order to determine if the data is consistent over time. A larger sample size would also allow for more confidence to be placed on outcomes for generalization.

3. Replication of the study would also result in sharing of more information to cue both nurse managers and staff nurses to the need to be individually aware of their personal and organizational impact in facilitating trust and accuracy of information.

APPENDIX A

PILOT QUESTIONNAIRES

Staff Nurse Questionnaire
(Pilot)

On the following pages, you will find a number of statements which are directed at gaining insight into your viewpoint as a staff nurse in communication relationships with supervisor nurses.

Please circle the number in each statement that best describes your beliefs.

The numbers 1 - 2 - 3 - 4 - 5 - 6 - 7, can be interpreted as follows:

1. Completely disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

1. Supervisor nurses can usually be relied upon to do what they say they will do.

1 2 3 4 5 6 7

2. Staff nurses are better off being cautious in their communication with supervisor nurses until the supervisor nurse provides evidence that they are trustworthy.

1 2 3 4 5 6 7

3. Supervisor nurses are generally out to get as much as they can for themselves.

1 2 3 4 5 6 7

4. Supervisor nurses are usually open and sincere in their dealings with staff nurses.

1 2 3 4 5 6 7

5. Supervisor nurses are usually honest and truthful.

1 2 3 4 5 6 7

6. Staff nurses that trust their supervisor communicate with them frequently.

1 2 3 4 5 6 7

7. Staff nurses should not place too much confidence in supervisor nurses' motives or intentions as they may not be what they say they are.

1 2 3 4 5 6 7

8. Supervisor nurses usually do not really say what they mean.

1 2 3 4 5 6 7

9. Supervisor nurses have a high degree of trust in the competence and ability of staff nurses.

1 2 3 4 5 6 7

10. Staff nurses cannot honestly disagree with supervisor nurses without fear of reprisal.

1 2 3 4 5 6 7

11. Supervisor nurses display supportive behavior toward staff nurses in most situations.

1 2 3 4 5 6 7

12. Supervisor nurses do not trust staff nurses to solve job-related problems.

1 2 3 4 5 6 7

13. Supervisor nurses generally do not treat staff nurses fairly.

1 2 3 4 5 6 7

14. Supervisor nurses encourage staff nurses to accept the joint responsibility for solving day-to-day operational problems.

1 2 3 4 5 6 7

15. Staff nurses are encouraged to make independent decisions when the situation demands it.

1 2 3 4 5 6 7

16. Supervisor nurses do not function as part of a team.

1 2 3 4 5 6 7

17. Staff nurses find the information they receive concerning department or organizational matters from supervisor nurses is frequently inaccurate.

1 2 3 4 5 6 7

18. Supervisor nurses tend to withhold information from staff nurses.

1 2 3 4 5 6 7

19. Supervisor nurses feel a responsibility to relate accurate information to staff nurses.

1 2 3 4 5 6 7

20. Supervisor nurses seek to share information with staff nurses.

1 2 3 4 5 6 7

21. Supervisor nurses who feel insecure in their position tend to distort information they transmit to staff nurses.

1 2 3 4 5 6 7

22. Supervisor nurses are more likely to relate what they believe themselves rather than what the staff nurse may want to hear.

1 2 3 4 5 6 7

23. Supervisor nurses tend to summarize information emphasizing what they feel is important and minimizing the rest.

1 2 3 4 5 6 7

24. Staff nurses tend to believe information they receive from supervisor nurses.

1 2 3 4 5 6 7

Demographic Data

Please circle the appropriate letter or letters, and fill in the blanks when indicated. All individual responses will be anonymous and confidential.

1. Sex: A. Female B. Male
2. Age: A. Under 25
 B. 25-35
 C. 36-45
 D. 46-55
 E. Over 55
3. A. Single
 B. Married
 C. Divorced
 D. Widowed
4. Education: A. Nursing Diploma, yr. _____
 B. Associate Degree, yr. _____
 C. Baccalaureate Degree, yr. _____
 D. Master's Degree, yr. _____
 E. Doctoral Degree, yr. _____
5. Total number of years in practice _____
6. Number of years _____ months _____ in present position.

Thanks again for your cooperation in participating in this study.

Supervisor Nurse Questionnaire
(Pilot)

On the following pages you will find a number of statements which are directed at gaining insight into your viewpoint as a supervisor nurse in communication relationships with staff nurses. Please circle the number in each statement that best describes your beliefs.

The numbers 1-2-3-4-5-6-7 can be interpreted as follows:

1. Complete disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

1. Staff nurses can usually be relied upon to do what they say they will do.

1 2 3 4 5 6 7

2. Supervisor nurses are better off being cautious in their communication with staff nurses until the staff nurse provides evidence that they are trustworthy.

1 2 3 4 5 6 7

3. Staff nurses are generally out to get as much as they can for themselves.

1 2 3 4 5 6 7

4. Staff nurses are usually open and sincere in their dealings with supervisor nurses.

1 2 3 4 5 6 7

5. Staff nurses are usually honest and truthful.

1 2 3 4 5 6 7

6. Supervisor nurses that trust their staff nurses communicate with them frequently.

1 2 3 4 5 6 7

7. Supervisor nurses should not place too much confidence in staff nurses motives or intentions as they may not be what they say they are.

1 2 3 4 5 6 7

8. Staff nurses usually do not really say what they mean.

1 2 3 4 5 6 7

9. Staff nurses have a high degree of trust in the competence and ability of supervisor nurses.

1 2 3 4 5 6 7

10. Supervisor nurses cannot honestly disagree with staff nurses without fear of reprisal.

1 2 3 4 5 6 7

11. Staff nurses display supportive behavior toward supervisor nurses in most situations.

1 2 3 4 5 6 7

12. Staff nurses do not trust supervisor nurse's judgment in solving job related problems.

1 2 3 4 5 6 7

13. Staff nurses generally do not treat supervisor nurses fairly.

1 2 3 4 5 6 7

14. Staff nurses accept the joint responsibility for solving day-to-day operational problems.

1 2 3 4 5 6 7

15. Supervisor nurses should encourage staff nurses to make independent decisions when the situation demands it.

1 2 3 4 5 6 7

16. Staff nurses do not function as part of a team.

1 2 3 4 5 6 7

17. Supervisor nurses find the information they receive concerning department or patient care information from staff nurses is frequently inaccurate.

1 2 3 4 5 6 7

18. Staff nurses tend to withhold information from supervisor nurses.

1 2 3 4 5 6 7

19. Staff nurses feel a responsibility to relate accurate information to staff nurses.

1 2 3 4 5 6 7

20. Staff nurses seek to share information with supervisor nurses.

1 2 3 4 5 6 7

21. Staff nurses who feel insecure in their position tend to distort information they transmit to supervisor nurses.

1 2 3 4 5 6 7

22. Staff nurses are more likely to relate what they believe themselves rather than what the supervisor nurses may want to hear.

1 2 3 4 5 6 7

23. Staff nurses tend to summarize information emphasizing what they feel is important and minimizing the rest.

1 2 3 4 5 6 7

24. Supervisor nurses tend to believe information they receive from staff nurses.

1 2 3 4 5 6 7

Demographic Data

Please circle the appropriate letter or letters and fill in the blanks when indicated. All individual responses will be anonymous and confidential.

1. Sex: A. Female B. Male
2. Age: A. Under 25
 B. 25-35
 C. 36-45
 D. 46-55
 E. Over 55
3. A. Single
 B. Married
 C. Divorced
 D. Widowed
4. Education: A. Nursing Diploma Year _____
 B. Associate Degree Year _____
 C. Baccalaureate Degree Year _____
 D. Master's Degree Year _____
 E. Doctoral Degree Year _____
5. Total number of years in practice _____
6. Number of years _____ months _____ in present position.
7. Number of nurses you supervise:
 _____ female _____ male

Thanks again for your cooperation in participating in this study.

APPENDIX B

COVER LETTER TO PARTICIPANTS

Carolyn Wold
906 Chambers
South Ogden, Utah 84403
(801) 479-7199

Dear Colleague:

I am a graduate student in nursing administration at the University of Utah and also a Clinical Director of an operating room department. In these capacities, I have become interested in communication relationships and have chosen to study nurses' attitudes toward communication through seeking your individual feelings and beliefs in this area.

Attached you will find a questionnaire dealing with specific aspects relating to these beliefs and feelings. The completion of the form should take approximately 20 minutes to complete and I would greatly appreciate your participation in the study.

Your completion and return of this questionnaire will be considered your informed consent to participate in the research. I have chosen this manner to obtain your consent as it assures complete anonymity. I hope that you will be straightforward in your answers as I assure you that this information will remain anonymous and confidential.

The purpose of this investigation is to examine communication relationships in anticipation of increasing understanding. If you have any questions concerning the questionnaire or are interested in the final outcome of this study, please feel free to contact me.

Thank you for your time and effort.

Sincerely,

Carolyn Wold, R.N.

APPENDIX C

STUDY QUESTIONNAIRES

Supervisor Nurse Questionnaire

On the following pages you will find a number of statements which are directed at gaining insight into your viewpoint as a supervisor nurse in communication relationships with staff nurses. Please circle the number in each statement that best describes your beliefs.

The numbers 1 - 2 - 3 - 4 - 5 - 6 - 7 can be interpreted as follows:

1. Completely disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

1. Staff nurses can usually be relied upon to do what they say they will do.

1 2 3 4 5 6 7

2. It is difficult for supervisors to trust staff nurses until they provide evidence that they are trustworthy.

1 2 3 4 5 6 7

3. Staff nurses are generally out to get as much as they can for themselves, sometimes to the detriment of the supervisor nurse.

1 2 3 4 5 6 7

4. Staff nurses are usually open and sincere in their dealings with supervisor nurses.

1 2 3 4 5 6 7

5. Staff nurses are usually honest and truthful.

1 2 3 4 5 6 7

6. It is easy for supervisor nurses to trust their staff nurses.

1 2 3 4 5 6 7

7. Supervisor nurses should not place too much confidence in staff nurses motives or intentions as they may not be what they say they are.

1 2 3 4 5 6 7

8. Staff nurses usually do not really say what they mean.

1 2 3 4 5 6 7

9. Staff nurses have a high degree of trust in the competence and ability of supervisor nurses.

1 2 3 4 5 6 7

10. Supervisor nurses cannot honestly disagree with staff nurses without creating conflict.

1 2 3 4 5 6 7

11. Staff nurses display supportive behavior toward supervisor nurses in most situations.

1 2 3 4 5 6 7

12. Staff nurses do not trust supervisor nurses' judgment solving job related problems.

1 2 3 4 5 6 7

13. Staff nurses generally do not believe they are treated fairly by supervisor nurses.

1 2 3 4 5 6 7

14. Staff nurses readily accept the joint responsibility of solving day-to-day operational problems.

1 2 3 4 5 6 7

15. Staff nurses feel that they are able to make independent decisions when the situation demands it.

1 2 3 4 5 6 7

16. Staff nurses feel that supervisors do not function as part of a team.

1 2 3 4 5 6 7

17. Supervisor nurses find the information they receive concerning department or patient care information from staff nurses is frequently inaccurate.

1 2 3 4 5 6 7

18. Staff nurses tend to withhold information from supervisor nurses.

1 2 3 4 5 6 7

19. Staff nurses feel a responsibility to relate accurate information to supervisor nurses.

1 2 3 4 5 6 7

20. Staff nurses seek to share information with supervisor nurses.

1 2 3 4 5 6 7

21. Staff nurses tend to distort information they transmit to supervisor nurses.

1 2 3 4 5 6 7

22. Staff nurses are more likely to relate what they think the supervisor nurse wants to hear rather than what they know to be true.

1 2 3 4 5 6 7

23. Staff nurses tend to summarize information summarizing what they feel is important and may omit information that the supervisor feels is important.

1 2 3 4 5 6 7

24. Supervisor nurses tend to believe information they receive from staff nurses.

1 2 3 4 5 6 7

Demographic Data

Please circle the appropriate letter or letters and fill in the blanks when indicated. All individual responses will be anonymous and confidential.

1. Sex: A. Female B. Male
2. Age: A. Under 25
 B. 25-35
 C. 36-45
 D. 46-55
 E. Over 55
3. A. Single
 B. Married
 C. Divorced
 D. Widowed
4. Education: A. Nursing Diploma Year _____
 B. Associate Degree Year _____
 C. Baccalaureate Degree Year _____
 D. Master's Degree Year _____
 E. Doctoral Degree Year _____
5. Total number of years in practice _____
6. Number of years _____ months _____ in present position.
7. Number of nurses you supervise:
 _____ female _____ male

Thanks again for your cooperation in participating in this study.

Staff Nurse Questionnaire

On the following pages you will find a number of statements which are directed at gaining insight into your viewpoint as a staff nurse in communication relationships with supervisor nurses.

Please circle the number in each statement that best describes your beliefs.

The numbers 1 - 2 - 3 - 4 - 5 - 6 - 7, can be interpreted as follows:

1. Complete disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

1. Supervisor nurses can usually be relied upon to do what they say they will do.

1 2 3 4 5 6 7

2. It is difficult for staff nurses to trust supervisors until they provide evidence they are trustworthy.

1 2 3 4 5 6 7

3. Supervisor nurses are generally out to get as much as they can for themselves.

1 2 3 4 5 6 7

4. Supervisor nurses are usually open and sincere in their dealings with staff nurses.

1 2 3 4 5 6 7

5. Supervisor nurses are usually honest and truthful.

1 2 3 4 5 6 7

6. It is easy for staff nurses to trust their supervisor nurses.

1 2 3 4 5 6 7

7. Staff nurses should not place too much confidence in supervisor nurses' motives or intentions as they may not be what they say they are.

1 2 3 4 5 6 7

8. Supervisor nurses usually do not really say what they mean.

1 2 3 4 5 6 7

9. Supervisor nurses have a high degree of trust in the competence and ability of staff nurses.

1 2 3 4 5 6 7

10. Staff nurses cannot honestly disagree with supervisor nurses without fear of reprisal.

1 2 3 4 5 6 7

11. Supervisor nurses display supportive behavior toward staff nurses in most situations.

1 2 3 4 5 6 7

12. Supervisor nurses do not trust staff nurses to solve job-related problems.

1 2 3 4 5 6 7

13. Supervisor nurses generally do not believe they are treated fairly by staff nurses.

1 2 3 4 5 6 7

14. Supervisor nurses encourage staff nurses to accept the joint responsibility for solving day-to-day operational problems.

1 2 3 4 5 6 7

15. Staff nurses are encouraged to make independent decisions when the situation demands it.

1 2 3 4 5 6 7

16. Supervisor nurses feel that staff nurses do not function as part of a team.

1 2 3 4 5 6 7

17. Staff nurses find the information they receive concerning department or organizational matters from supervisor nurses is frequently inaccurate.

1 2 3 4 5 6 7

18. Supervisor nurses tend to withhold information from staff nurses.

1 2 3 4 5 6 7

19. Supervisor nurses feel a responsibility to relate accurate information to staff nurses.

1 2 3 4 5 6 7

20. Supervisor nurses seek to share information with staff nurses.

1 2 3 4 5 6 7

21. Supervisor nurses tend to distort information they transmit to staff nurses.

1 2 3 4 5 6 7

22. Supervisor nurses are more likely to relate what they think the staff nurse wants to hear rather than what they know to be true.

1 2 3 4 5 6 7

23. Supervisor nurses tend to summarize information emphasizing what they feel is important and may omit information that the staff nurse feels is important.

1 2 3 4 5 6 7

24. Staff nurses tend to believe information they receive from supervisor nurses.

1 2 3 4 5 6 7

Demographic Data

Please circle the appropriate letter or letters, and fill in the blanks when indicated. All individual responses will be anonymous and confidential.

1. Sex: A. Female B. Male
2. Age: A. Under 25
 B. 25-35
 C. 36-45
 D. 46-55
 E. Over 55
3. A. Single
 B. Married
 C. Divorced
 D. Widowed
4. Education: A. Nursing Diploma, yr. _____
 B. Associate Degree, yr. _____
 C. Baccalaureate Degree, yr. _____
 D. Master's Degree, yr. _____
 E. Doctoral Degree, yr. _____
5. Total number of years in practice _____
6. Number of years _____ months _____ in present position.

Thanks again for your cooperation in participating in this study.

APPENDIX D

REVISED QUESTIONNAIRES

Supervisor Nurse Questionnaire

1. It is difficult for supervisors to trust staff nurses until they provide evidence that they are trustworthy.

1 2 3 4 5 6 7

2. Staff nurses are generally out to get as much as they can for themselves, sometimes to the detriment of the supervisor nurse.

1 2 3 4 5 6 7

3. Staff nurses are usually open and sincere in their dealings with supervisor nurses.

1 2 3 4 5 6 7

4. Staff nurses have a high degree of trust in the competence and ability of supervisor nurses.

1 2 3 4 5 6 7

5. Staff nurses do not trust supervisor nurses' judgment solving job related problems.

1 2 3 4 5 6 7

6. Supervisor nurses find the information they receive concerning department or patient care information from staff nurses is frequently inaccurate.

1 2 3 4 5 6 7

7. Staff nurses tend to withhold information from supervisor nurses.

1 2 3 4 5 6 7

8. Staff nurses feel a responsibility to relate accurate information to supervisor nurses.

1 2 3 4 5 6 7

9. Supervisor nurses tend to believe information they receive from staff nurses.

1 2 3 4 5 6 7

Staff Nurse Questionnaire

1. It is difficult for staff nurses to trust supervisors until they provide evidence that they are trustworthy.

1 2 3 4 5 6 7

2. Supervisor nurses are generally out to get as much as they can for themselves.

1 2 3 4 5 6 7

3. Supervisor nurses have a high degree of trust in the competence and ability of staff nurses.

1 2 3 4 5 6 7

4. Supervisor nurses display supportive behavior toward staff nurses in most situations.

1 2 3 4 5 6 7

5. Staff nurses are encouraged to make independent decisions when the situation demands it.

1 2 3 4 5 6 7

6. Supervisor nurses feel that staff nurses do not function as part of a team.

1 2 3 4 5 6 7

7. Staff nurses find the information they receive concerning department or organizational matters from supervisor nurses is frequently inaccurate.

1 2 3 4 5 6 7

8. Supervisor nurses tend to withhold information from staff nurses.

1 2 3 4 5 6 7

9. Supervisor nurses feel a responsibility to relate accurate information to staff nurses.

1 2 3 4 5 6 7

10. Supervisor nurses seek to share information with staff nurses.

1 2 3 4 5 6 7

11. Supervisor nurses tend to distort information they transmit to staff nurses.

1 2 3 4 5 6 7

12. Supervisor nurses are more likely to relate what they think the staff nurse wants to hear rather than what they know to be true.

1 2 3 4 5 6 7

13. Supervisor nurses tend to summarize information emphasizing what they feel is important and may omit information that the staff nurse feels is important.

1 2 3 4 5 6 7

14. Staff nurses tend to believe information they receive from supervisor nurses.

1 2 3 4 5 6 7

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